



6T40 SERIES TRANSMISSION FIRST GENERATION

BUMPY OR SLIPPING REVERSE, THIRD AND FIFTH

COMPLAINT: A 6T30/40/45/50 first generation transmission comes in with the 3-5-R clutch assembly destroyed spreading metal throughout the transmission. During the rebuild, an updated piston (24259061), wave plate (24230757) and drum assembly with a deeper groove for the retaining snap ring (24255922) was installed. After the rebuild the transmission slipped in reverse and had sliding 2-3 and 4-5 shifts. Since these solenoids can be removed from the TEHCM assembly and new solenoid sets are being sold separately, new solenoids were installed as the original ones were loaded with foreign debris. The complaint of a harsh reverse, third and fifth began. When using a scan tool to reset adaptations, a message is displayed that the process was unsuccessful. Nor will the problem drive itself out on any length drive.

CAUSE: One cause may be a malfunctioning solenoid while another may be inconsistency with solenoid control. The complaint listed in this bulletin is due to a problematic 3-5-R solenoid. As a cost saving factor, rather than buying an entire TEHCM assembly, solenoid sets can be purchased separately. Differences in solenoid cap color is used to identify different vendors supplying GM with these solenoids. It has nothing to do with calibration or whether it is a normally high or normally low solenoid. Another observation that can be made is the use of different numbers printed on the canister of the solenoid. The 3-5-R solenoid is a Normally High (N/H) solenoid. The different numbers we have seen for first generation N/H solenoids have been: 612640-04, 628509-05, 627520-06, 627520-12 and 24257170 (Figure 1). When mounting these solenoids in a test block supplied with 60 psi of shop air, approximately the same amount of pressure should be seen on the test gauge when a N/H solenoid is off. When the solenoid is duty cycled at approximately 50%, the pressure should drop (Figure 2). It has been noticed that the drop in pressure has not been consistent. One solenoid will drop to 40 psi while another will drop to 30 or 25 psi. The 04 and the 06 solenoids look identical externally. Yet the 04 solenoid dropped to 23 psi at 50% duty cycle while the 06 dropped to a low 8 psi (Figure 3).

CORRECTION: Two observations and corresponding actions need to take place to correctly replace solenoids with 6T40 series transmissions. First, be sure to place the N/H and N/L solenoids in their proper location and secondly, match the pressure output of the solenoid being changed with one that is working correctly.

There are three N/H solenoids, the 1-2-3-4, 3-5-R and line pressure. If one solenoid is malfunctioning, a comparison can be done with the two that are functioning correctly. The replacement solenoid should match whatever the pressure is at a 50% duty cycle with a good working solenoid in the vehicle. If all solenoids are malfunctioning, it would be best to replace all the solenoids with the same number on the canister or purchase a new TEHCM.

Caution: *The tests described in this bulletin were done quickly before the solenoids began to increase in temperature. Pressures will vary the longer the tests takes place as the solenoids are being pulsed with air not fluid.*

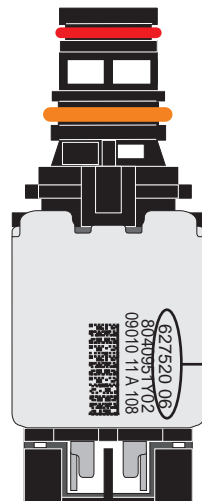
Many thanks to Jan ten Klooster of De Boer Transmissie



Technical Service Information

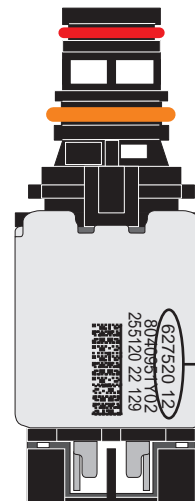
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627520 06

3-5-R N/H Solenoid



627520 12

3-5-R N/H Solenoid

Other numbers identified have been:

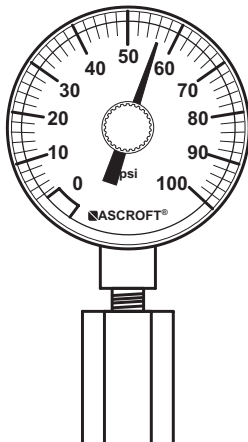
612640 04

628509 05

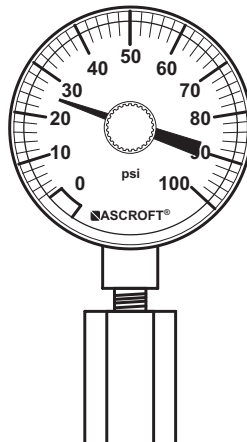
2427170

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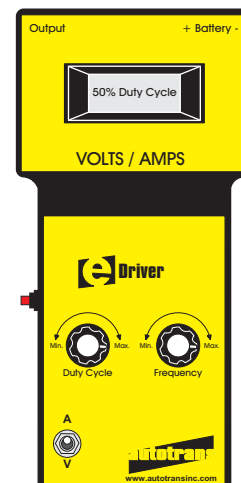
Figure 1



0% Duty Cycle
(0 amps)



50% Duty Cycle
(1 amp)



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Figure 2

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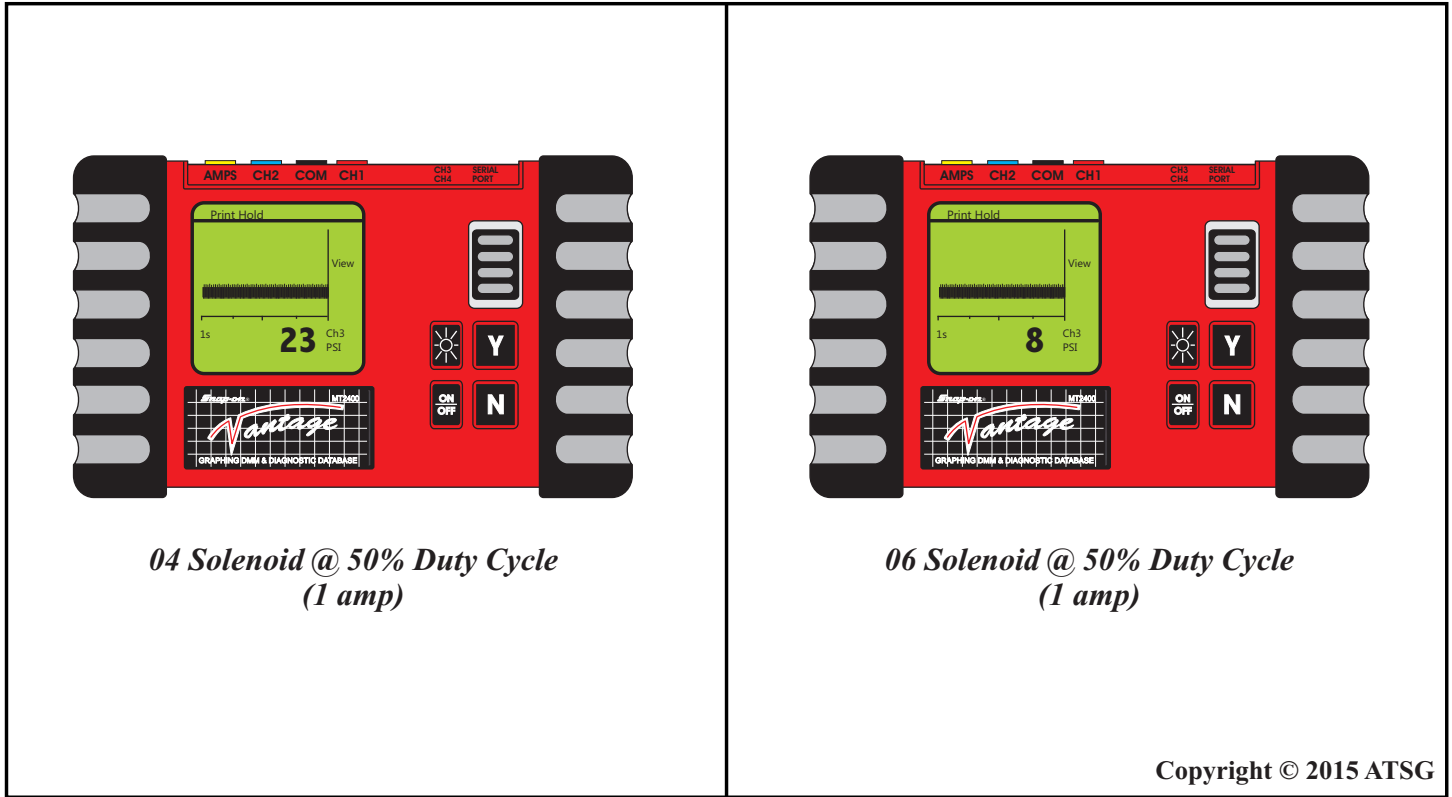


Figure 3

Example Test Results at 0.8amps using air

Solenoids #	psi @ 0% Duty Cycle	psi @ 50% Duty Cycle
612640-04	58psi	13psi
628509-05	58psi	10psi
627520-06	58psi	25psi
24257170	58psi	28-52psi - was erratic
627520-10	58psi	30psi

Figure 4